



Scam  
G 24240  
SN 18557  
SN 18558  
upd.

BH  
Deborah R. Malbrough  
Regulatory Advisor  
Gulf of Mexico Region

**BP Exploration & Production Inc.**  
200 Westlake Park Boulevard - 471E WL4  
Houston, Texas 77079  
Telephone: 713-323-2090  
Email: deborah.malbrough@bp.com

February 26, 2013

Mr. Michael J. Saucier  
Regional Supervisor - Office of Field Operations  
U.S. Department of the Interior  
Bureau of Safety and Environmental Enforcement  
1201 Elmwood Park Boulevard  
New Orleans, Louisiana 70123-2394

FEB 27 2013

Attention: Pipeline Section - GE1035A

**Reference: As-Built Submittals**

**Na Kika Phase 3 – Ariel and Kepler Umbilicals  
Pipeline Segments 18557 and 18558  
Mississippi Canyon Area, Gulf of Mexico, Federal Waters**

Gentlemen:

**BP Exploration & Production Inc. (BP)**, as required by 30 CFR 250.1008, submits in triplicate, the Completion Reports for the Ariel A-5 and Kepler K-4 Umbilicals, PL Segments 18557 and 18558.

Per the CFR, the Completion Reports include:

- Certified “as-built” location plats
- Chronological Information (completion date and date of first operation)
- Hydrostatic Pressure Test (HPT) data

Included for your reference, is an Ariel and Kepler Field Layout Drawing and the Ariel and Kepler Drill Center As-Built Surveys.

If you have any questions please, contact the undersigned at (713) 323-2090, on cell (713) 557-9453 or deborah.malbrough@bp.com.

Sincerely,

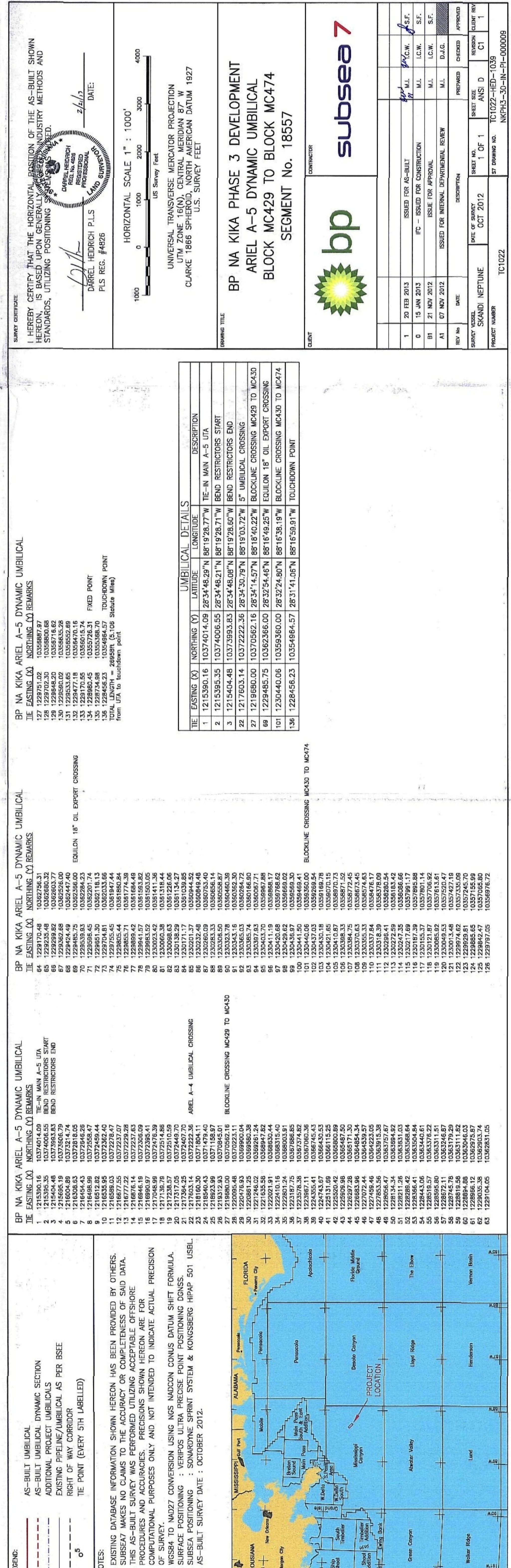
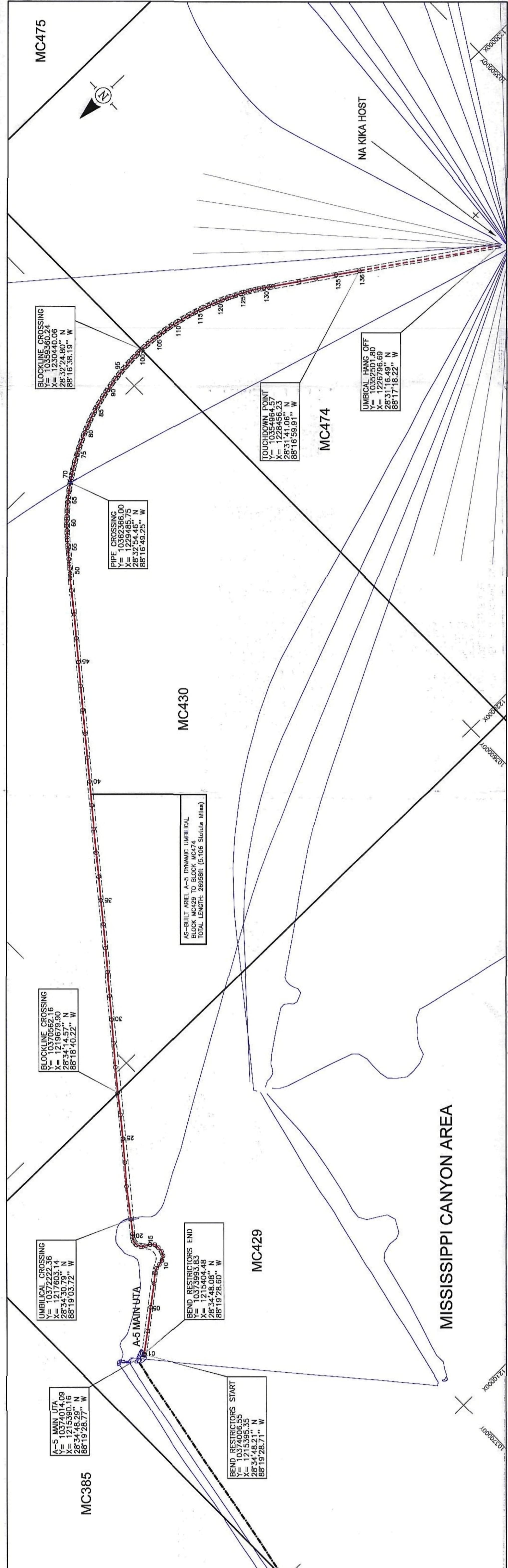
*Deborah J. Malbrough*  
Deborah Malbrough  
Regulatory Advisor

**Chronological Information:**

The ArielA-5 Umbilical was installed utilizing the PLSV Skandi Neptune from October 4 – 9, 2012. The As-Lay survey was performed from October 9 – 10, 2012. Post Load-Out testing was completed November 19, 2012.

The Kepler K-5 Umbilical was installed utilizing the PLSV Skandi Neptune from September 26 - 29, 2012. The As-Lay survey was performed from October 9 – 10, 2012. Post Load-Out testing was completed November 19, 2012.

**First operation is expected to be June 1, 2013.**





## UMBILICAL POST LOAD OUT TESTING

Project:	Nakika Phase 3	Location:	Na Kika
Umbilical Ident:	A-5 and K-4	Instrument Type:	Keller Manometer
Test date:	11/19/2012	Inst. Serial No:	441 / 9031
Pressure Test			

Tube Number	Line Designation	Test From	Test To	Test pressure	Hold Period	Start Pressure (PSI)	Finish Pressure (PSI)	Start Pressure (BAR)	Finish Pressure (BAR)	Pressure Drop (PSI)	Pressure Drop (BAR)	% Pressure Drop
1	LP1	Bullnose	K-4 SDU	5,500	4 Hour	5788	5762	399.07	397.28	26	1.79	0.45%
2	LP2	Bullnose	K-4 SDU	5,500	4 Hour	5788	5762	399.07	397.28	26	1.79	0.45%
3	HP1	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	1.00	9	778.11	0.08%
4	HP2	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
5	MEOH1	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
6	MEOH2	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
7	MEOH3	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
8	MEOH4	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
9	MEOH5	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
10	MEOH6	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
11	MEOH7	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
12	AMON	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
13	CI1	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
14	CI2	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
15	CI3	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
16	CI4	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
17	CI5	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
18	CI6	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
19	CI7	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
20	AI1	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
21	AI2	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
22	AI3	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
23	SP1	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
24	SP2	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
25	SP3	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%

Comments

Signed for and Accepted by:

For BH:

Name Jeff Davis

Signature

Date 11/19/12

Signed for and Accepted by:

For SUBSEA 7

Name.

Signature

Date:

Signed for and Accepted by:

For B:

Name

Signature

Date



## CERTIFICATE: UMBILICAL TUBING PRESSURE TEST

PROJECT:	BP Na Kika Phase 3	JOB NO:	C/1337/11
CLIENT:	Subsea 7	DATE:	11/19/2012
LOCATION:	Na Kika	VOLUME:	N/A
TOTAL LENGTH:	N/A	TEST MEDIUM:	Trans Aqua

This is to certify that the following Umbilical(s) were tested as detailed below:

Type of Test:	Leak	(Strength, Leak or Proof Test)
Umbilical(s):	Ariel A-5 and K-4	
From:	Bullnose	
To:	K-4 SDU	
Via:		
Minimum Test Pressure:	11,000 PSI	
Maximum Test Pressure:	11,500 PSI	
Acceptance Criteria:	No unexplainable loss in pressure.	
Minimum Hold Period:	4 Hours	
Maximum pressure recorded during the test period:	11300 PSI	
Minimum pressure recorded during the test period:	11291 PSI	
Pressure Drop:	9 PSI	

## LINE(S) DETAILS

No.	Service	ID (mm)	No.	Service	ID (mm)
3	HP1	12.7	21	AI2	12.7
4	HP2	12.7	22	AI3	12.7
5	MeOH1	19.5	23	SP1	12.7
6	MeOH2	19.5	24	SP2	12.7
7	MeOH3	19.5	25	SP3	19.5
8	MeOH4	19.5			
9	MeOH5	19.5			
10	MeOH6	19.5			
11	MeOH7	19.5			
12	AMON	19.5			
13	CI1	12.7			
14	CI2	12.7			
15	CI3	12.7			
16	CI4	12.7			
17	CI5	12.7			
18	CI6	12.7			
19	CI7	12.7			
20	CI1	12.7			

## INSTRUMENTATION DETAILS

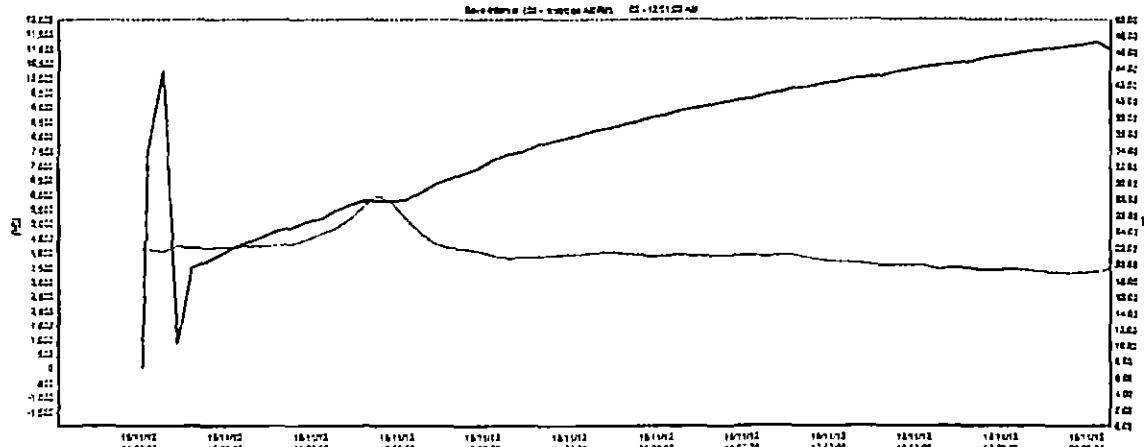
Type of instrumentation:	Serial No.	Calibration Date:	Range:	Manufacturer:
Pressure Indicator:				
Pressure Recorder:	441	9/29/2012	0-1400 BAR	Keller
Pressure Gauge:				

Comments:

## ACCEPTANCE:

FOR BHI:	Jeff Davis	SUBSEA 7:		BP:	
SIGNATURE:		SIGNATURE:		SIGNATURE:	
DATE:	11/19/2012	DATE:		DATE:	

# BP Na Kika Phase 3 Entire Field Pressure Test



## Device-Information

File: 19.11.2012\_09.02.22\_00.IDC

### Device-Identification:

Device-SN: 441

Device-ID: 10.2

Device-Version: 4.47

Battery-Capacity: 100%

## Compensated Pressure- and Temperature-Range(s)

P1 min / max (bar): 0.0000 1400.0000

TOB1 min / max (°C): 0.000 50.000

## Comment

BP Na Kika Phase 3 Entire Field Pressure Test

Test Medium: Transaqua

Lines: 3-25

11/19/12

## Record configuration:

Starttime: 11/19/2012 9:02:22 AM

Fixed Save-Interval (dd hh:mm:ss): 0 12:01:00 AM

Endless (circular memory): No

Converted into waterlevel: No

Airpressure compensated: No



## **CERTIFICATE: UMBILICAL TUBING PRESSURE TEST**

PROJECT:	BP Na Kika Phase 3	JOB NO:	C/1337/11
CLIENT:	Subsea 7	DATE:	11/19/2012
LOCATION:	Na Kika	VOLUME:	N/A
TOTAL LENGTH:	N/A	TEST MEDIUM:	SST5007

This is to certify that the following Umbilical(s) were tested as detailed below:

Type of Test:	Leak	(Strength, Leak or Proof Test)
Umbilical(s):	Ariel A-5 and K-4	
From:	Bullnose	
To:	K-4 SDU	
Via:		
Minimum Test Pressure:	5,500 PSI	
Maximum Test Pressure:	6,000 PSI	
Acceptance Criteria:	No unexplainable loss in pressure.	
Minimum Hold Period:	4 Hours	
Maximum pressure recorded during the test period:	5788 PSI	
Minimum pressure recorded during the test period:	5762 PSI	
Pressure Drop:	26 PSI	

**LINE(S) DETAILS**

## **INSTRUMENTATION DETAILS**

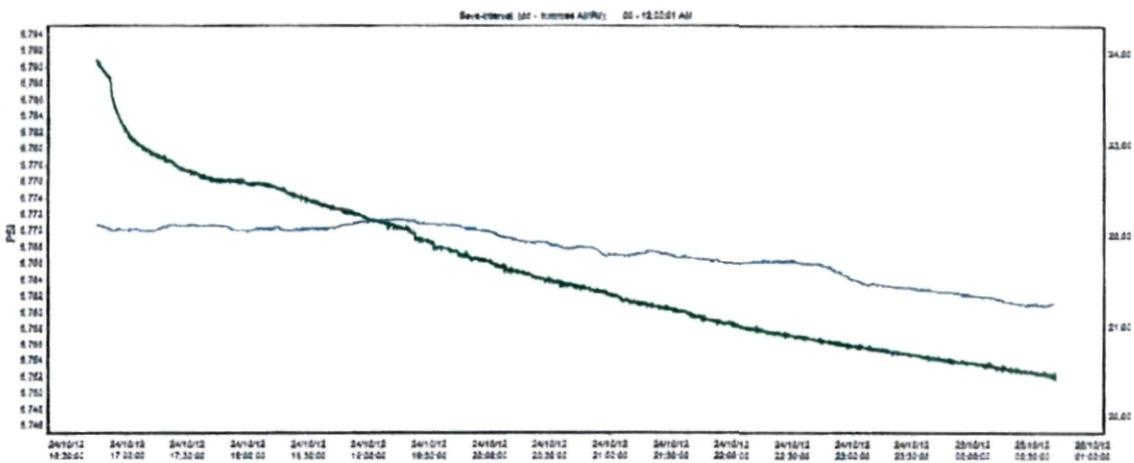
Type of instrumentation:	Serial No.	Calibration Date:	Range:	Manufacturer:
Pressure Indicator:				
Pressure Recorder:	9031	6/20/2012	0-1400 BAR	Keller
Pressure Gauge:				
Comments:				

**Comments:**

## **ACCEPTANCE:**

<b>FOR BHI:</b>	Jeff Davis	<b>SUBSEA 7:</b>		<b>BP:</b>	
<b>SIGNATURE:</b>		<b>SIGNATURE:</b>		<b>SIGNATURE:</b>	
<b>DATE:</b>	11/19/2012	<b>DATE:</b>		<b>DATE:</b>	

# BP Na Kika Phase 3 Entire Field Pressure Test



## Device-Information

File: 24.10.2012\_16,44,41\_00.IDC

### Device-Identification:

Device-SN: 9031

Device-ID: 10.2

Device-Version: 11.4

Battery-Capacity: 100%

## Compensated Pressure- and Temperature-Range(s)

P1 min / max (bar): 0.0000 1400.0000

TOB1 min / max (°C): 0.000 50.000

## Comment

BP Na Kika Phase 3 Entire Field Pressure Test

Test Medium: Transqua

Lines: 1 & 2

9/19/2012

## Record configuration:

Starttime: 10/24/2012 4:44:41 PM

Fixed Save-Interval (dd hh:mm:ss): 0 12:00:01 AM

Endless (circular memory): No

Converted into waterlevel: No

Airpressure compensated: No



## Umbilical Post System Installation Test Log Sheet

Project:		Nakika Phase 3		Location:		BP Na Kika Platform					
Umbilical Ident:		ARIEL A-5 and Kepler K-4		Instrument Type:		Keller Manometer					
Test Date:				Serial No.							
Sheet 1 of ____											
Fluid Type & Pressure Reading (psi)											
MANIFOLD		1	2		MANIFOLD		1	2			
Date	Time (Hrs/Mins)	Transqua Lines	Transqua Lines	Temp. °C	Comments	Date	Time (Hrs/Mins)	Transqua Lines	Transqua Lines	Temp. °C	Comments
11/19	11:00	5788				11/19	23:00	11290			
	11:30	5778					23:15	11291			
	12:00	5774				11/19	23:30	11291	END HP LINES (4 HR HOLD)		
	12:30	5774					23:40		START BLEED DOWN		
	13:00	5773		LP LINES							
	13:30	5771		TEST (4 HR HOLD)							
	14:00	5769									
	14:30	5767									
11/19	15:00	5762									
<i>HP LINES 4 HR HOLD</i>											
11/19	18:00	11268									
<del>PRESSURE</del>	19:00	11300									
	19:15	11300									
	19:30	11300									
	19:45	11299									
	20:00	11299									
	20:15	11294									
	20:30	11294									
	20:45	11295									
	21:00	11295									
	21:15	11295									
	21:30	11295									
	21:45	11295									
	22:00	11295									
	22:15	11290									
	22:30	11291									
11/19	22:45	11291									
<i>Comments:</i>											
Signed for and Accepted By For BH		Signed for and Accepted By For Subsea		Signed for and Accepted By For BP							
Name: <u>JEFF DAVIS</u>	Signature: <u>____</u>	Name: <u>MASON FINGERSEN</u>	Signature: <u>____</u>	Name: <u>MAURICE MANGALA</u>	Signature: <u>____</u>						
Date: <u>11-19-12</u>		Date: <u>11-19-12</u>		Date: <u>11-19-12</u>							

# Tektronix

Service Solutions

## Certificate of Calibration



6540984

Certificate Page 1 of 2

### Instrument Identification

Company ID: NOWPIP

BAKER HUGHES

4101 OATES ROAD  
HOUSTON, TX 77013

PO Number: CC-ALISTAIR

Instrument ID: 6200711643

Model Number: MT9083A

Manufacturer: ANRITSU

Serial Number: 6200711643

Description: OTDR

Accuracy: Mfr. Specifications.

### Certificate Information

Reason For Service: CALIBRATION

Technician: STEVE SEAMON

Type of Cal: NORMAL

Cal Date 07Sep2012

As Found Condition: IN TOLERANCE

Cal Due Date: 07Sep2013

As Left Condition: LEFT AS FOUND

Interval: 12 MONTHS

Procedure: GNR FIBER OPTIC

Temperature: 73.0 F

Humidity: 39.0 %

Remarks:

Tektronix Service Solutions certifies the performance of this instrument has been verified using equipment of known accuracy which are traceable to National Metrology Institutes (NIST, NPL, PTB) which are traceable to the International System of Units (SI), derived from ratio type measurements, compared to reference materials or recognized consensus standards. The policies and procedures used comply with ANSI/NCSL Z540.1-1994. The quality system is registered to ISO9001.

This certificate shall not be reproduced, except in full, without the written consent of Tektronix Service Solutions.

Approved By: STEVE SEAMON  
Service Representative

### Calibration Standards

NIST Traceable#	Inst. ID#	Description	Manufacturer	Model	Cal Date	Date Due
6124549	000798	TEMPERATURE / HUMIDITY RECORDER	HONEYWELL	612X9HT-II-III-7E1I	28Apr2012	26Oct2012
5909875	H044026	UNIVERSAL COUNTER	HEWLETT PACKARD	53132A	17Feb2012	17Feb2013
5802441	H090089	OPTICAL HEAD INTERFACE	HEWLETT PACKARD	81533B	16Jan2012	16Apr2013
5802408	H090090	OPTICAL SENSOR	HEWLETT PACKARD	81521B	16Jan2012	16Apr2013



## TEST CERTIFICATE

We hereby certify that the calibration references used in carrying out this work can be traceable to the National Standards and that the results of the calibration and relevant Procedures are recorded and available for inspection if required.

### Calibration Reference

Description      Digital Pressure Gauge  
Manufacturer    Keller  
Model           Leo Rec.  
Serial number   4918  
Cal due date    09/29/2012  
NIST             67042

### Calibration of

Description      Pressure Gauge  
Manufacturer    Keller  
Model           Leo Rec.  
Serial numbers   441  
ID               K23

## TEST RESULTS

### Applied Pressure

0               PSIG  
20000           PSIG

### Indicated Pressure

0               PSIG  
19985           PSIG

Calibration Date    January 19, 2012

  
ELECTRONIC TECHNICIAN

# KELLER Druckmesstechnik



Si Gallerstrasse 119, CH-8404 WINTERTHUR, Tel. +41 / 52 / 235 25 25 Fax. +41 / 52 / 235 25 00  
Schwarzwaldstrasse 17, D-79798 JESTETTEN, Tel. +49 / 77 45 / 92 14-0 Fax. +49 / 77 45 / 92 14-60

## Prüfprotokoll

Calibration Certificate / Fiche de calibration

Typ :	LEO Rec Ei / 1400bar / 81737		
Type / Type :			
Serienummer :	9031	Auftrags Nr. :	172573
Serial No. / N° de série :	Keller Order no. / Réf. Keller :		
Bereich :	0.0	... 1400.0	bar
Range / EM :			
Anzeige :	0.0	... 1400.0	bar
Display / Affichage :			
Komp. Temp. Bereich :	0...50°C	Speisung :	3.6 V Batt.
Comp. Temp. Range / Gamme de Temp. Comp.	Supply / Alimentation :		

Prüfmittel :	Druckwaage PM 02057		
Testequipment / Appareil de test :			
Luftdruck :	968	mbar	
Atm. Pressure / Pression atm. :			
Temperatur :	25	°C	
Temperature / Température :			

Bemerkung :
Remark / Remarque :

Druck	Anzeige	Fehler
Pressure / Pression	Display / Affichage	Error / Erreur
bar	bar	%FS / %EM
0.0	0.7	0.05
400.0	399.7	-0.02
800.0	799.4	-0.04
1200.0	1200.4	0.03
1400.0	1400.3	0.02

Prüfer /in: Test person: Contrôlé par:	A.Lugimbühl	Datum Date Date	20.06.2012
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4101 Gates Road  
Houston, Texas 77013

## TEST CERTIFICATE

We hereby certify that the calibration references used in carrying out this work can be traceable to the National Standards and that the results of the calibration and relevant Procedures are recorded and available for inspection if required.

### INSTRUMENT IN CALIBRATION

Instrument ID#	IR7	Model:	MIT520
Manufacturer	Megger	Serial Number	2375
Description	Insulation Tester	Accuracy	5%FS

#### Resistance Test @ 250V

Range	Nominal	Actual
MOhm	4	3.98
MOhm	8	7.98
MOhm	10	9.98

#### Resistance Test @ 500

Range	Nominal	Actual
MOhm	4	3.98
MOhm	8	7.97
MOhm	10	9.98

#### Resistance Test @ 1000 V

Range	Nominal	Actual
MOhm	4	3.98
MOhm	8	7.97
MOhm	10	9.98

#### Voltages Test

Range	Nominal	Actual
VDC	250	249
VDC	500	498
VDC	1000	998

**Humidity**      33%

**Temperature**      71:40 F

### Calibration Standards

NIST	Description	Model	S/N	Cal due date
1050483	Voltmeter	87-5	18250163	10/30/2012
6284321	Decade box	380400	Q223775	06/15/2013
6282833	Hygro-Thermometer	445715	Z204158	06/14/2013

Calibration Date      August 20, 2012

Cal due Date      August 19 2013

ELECTRONIC TECHNICIAN



## Test Certificate

We hereby certify that the calibration references used in carrying out this work can be traceable to the National Standards and that the results of the calibration and relevant Procedures are recorded and available for inspection if required.

### INSTRUMENT IN CALIBRATION

Instrument ID #	MM18	Model	87 IV
Manufacturer	Fluke	Serial Number	18250163
Description	Multimeter	Accuracy	

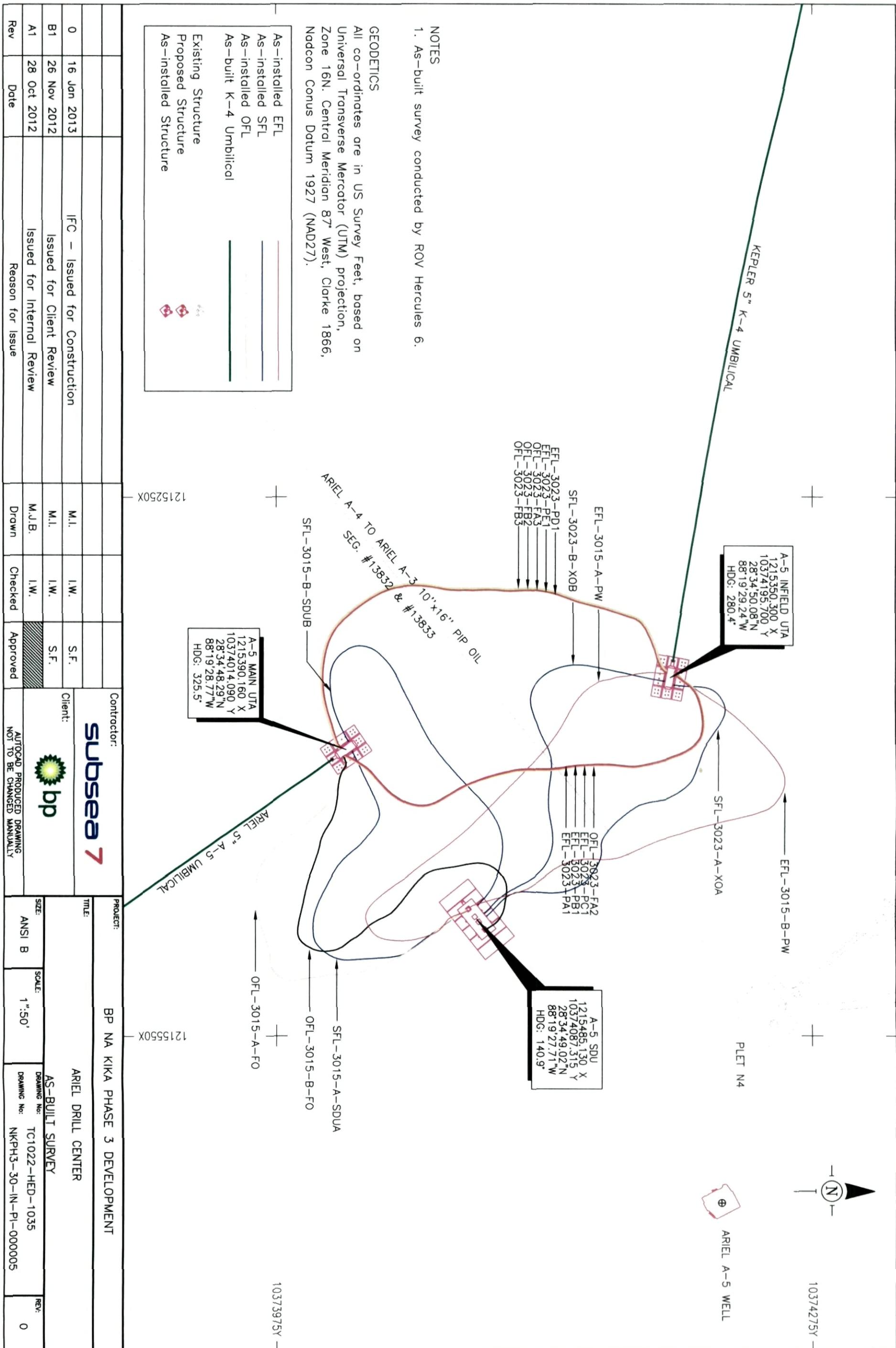
### TEST RESULTS

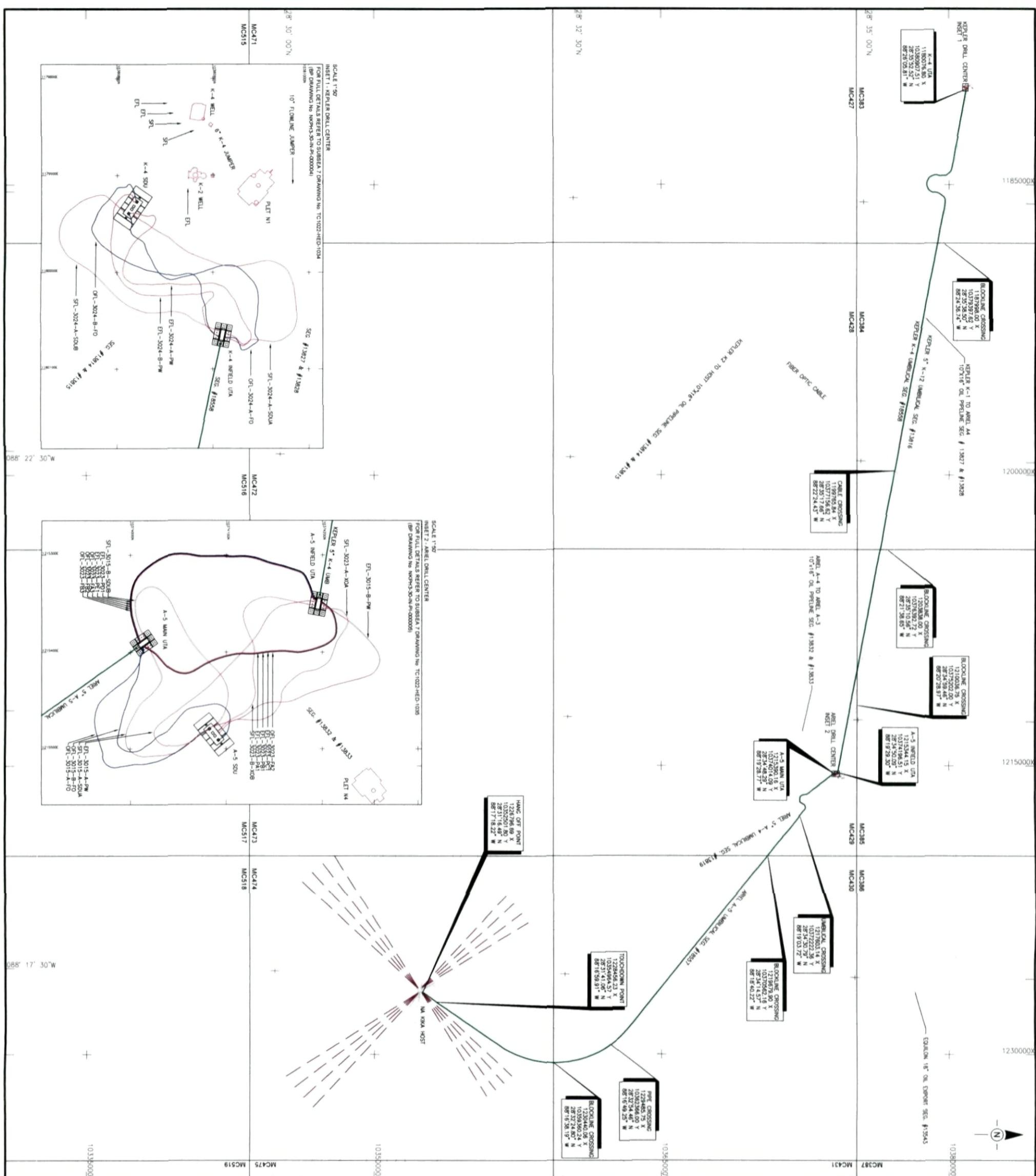
Range	Read	Range	Read	Range	Read	Range	Read
AC V		DCV		Ohms		Hz	
1	1.2	1	1.1	1	1	1.03	1.49
100	100	100	99	100	99	500	499
1000	999	1000	999	1000	1001	10000	10000

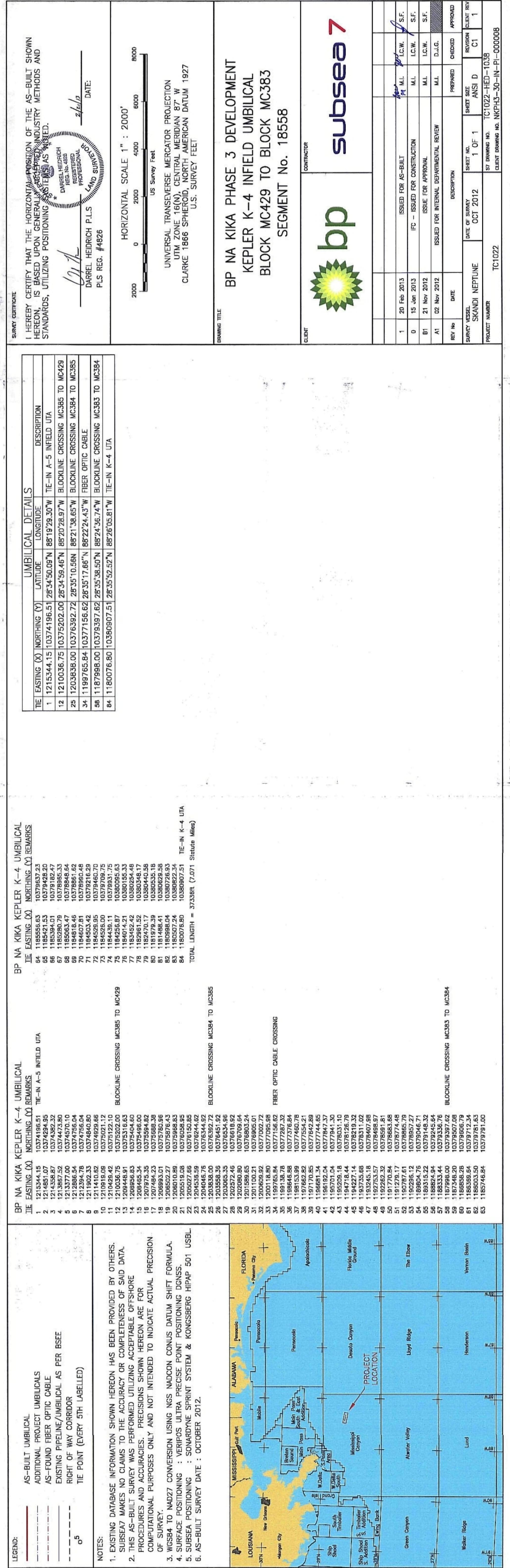
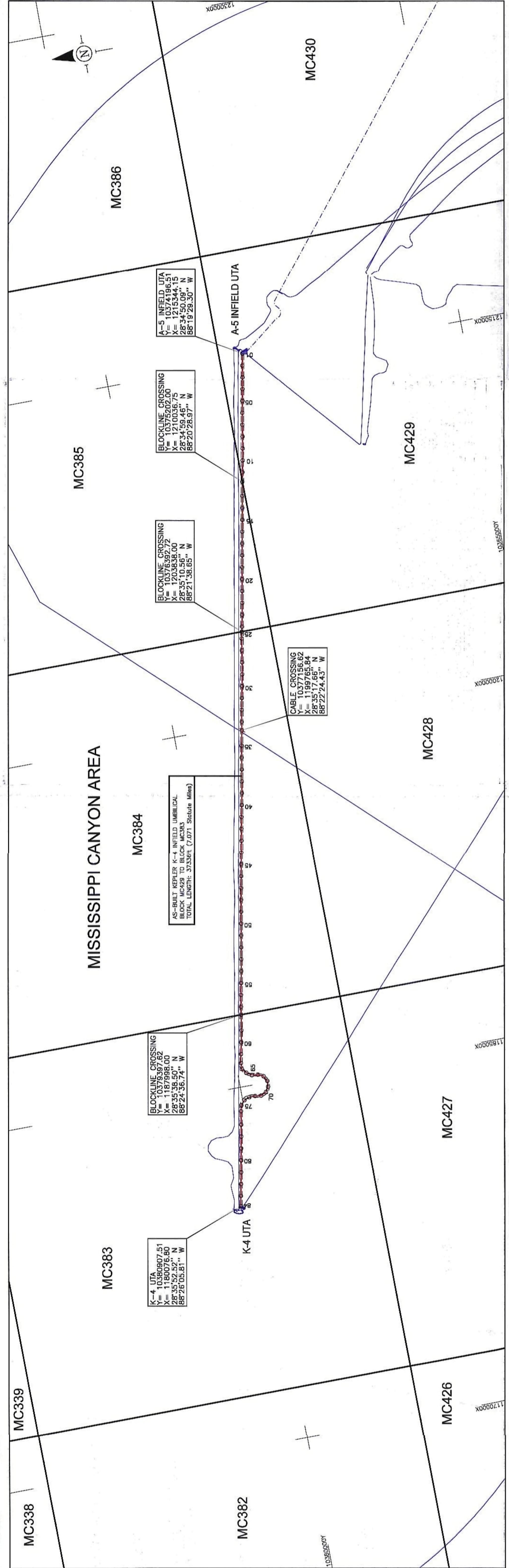
### THE FOLLOWING STANDARDS WERE USED

NIST	DESCRIPTION	MODEL	S/N	CAL DUE DATE
6281636	Function Generator	4017	260-02048	6/14/2013
5475545	Dual Display Digital Multimeter	45	6702035	9/12/2012
6284321	Resistance decade box	380400	Q223775	6/15/2013
Calibration Date	August 27 2012		Cal due date	August 26 2013

MICHAEL PHILLIPS  
ELECTRONIC TECHNICIAN









## UMBILICAL POST LOAD OUT TESTING

Project:	Nakika Phase 3	Location:	Na Kika
Umbilical Ident:	A-5 and K-4	Instrument Type:	Keller Manometer
Test date:	11/19/2012	Inst. Serial No:	441 / 9031
Pressure Test			

Tube Number	Line Designation	Test From	Test To	Test pressure	Hold Period	Start Pressure (PSI)	Finish Pressure (PSI)	Start Pressure (BAR)	Finish Pressure (BAR)	Pressure Drop (PSI)	Pressure Drop (BAR)	% Pressure Drop
1	LP1	Bullnose	K-4 SDU	5,500	4 Hour	5788	5762	399.07	397.28	26	1.79	0.45%
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12	AMON	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
13	CI1	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
14	CI2	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
15	CI3	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
16	CI4	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
17	CI5	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
18	CI6	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
19	CI7	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
20	AI1	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
21	AI2	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
22	AI3	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
23	SP1	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
24	SP2	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%
25	SP3	Bullnose	K-4 SDU	11,000	4 Hour	11300	11291	779.11	778.49	9	0.62	0.08%

Comments

Signed for and Accepted by:

For BH:

Name Jeff Davis

Signature

Date 11/19/12

Signed for and Accepted by:

For SUBSEA 7

Name.

Signature

Date:

Signed for and Accepted by:

For B:

Name

Signature

Date



## CERTIFICATE: UMBILICAL TUBING PRESSURE TEST

PROJECT:	BP Na Kika Phase 3	JOB NO:	C/1337/11
CLIENT:	Subsea 7	DATE:	11/19/2012
LOCATION:	Na Kika	VOLUME:	N/A
TOTAL LENGTH:	N/A	TEST MEDIUM:	Trans Aqua

This is to certify that the following Umbilical(s) were tested as detailed below:

Type of Test:	Leak	(Strength, Leak or Proof Test)
Umbilical(s):	Ariel A-5 and K-4	
From:	Bullnose	
To:	K-4 SDU	
Via:		
Minimum Test Pressure:	11,000 PSI	
Maximum Test Pressure:	11,500 PSI	
Acceptance Criteria:	No unexplainable loss in pressure.	
Minimum Hold Period:	4 Hours	
Maximum pressure recorded during the test period:	11300 PSI	
Minimum pressure recorded during the test period:	11291 PSI	
Pressure Drop:	9 PSI	

## LINE(S) DETAILS

No.	Service	ID (mm)	No.	Service	ID (mm)
3	HP1	12.7	21	AI2	12.7
4	HP2	12.7	22	AI3	12.7
5	MeOH1	19.5	23	SP1	12.7
6	MeOH2	19.5	24	SP2	12.7
7	MeOH3	19.5	25	SP3	19.5
8	MeOH4	19.5			
9	MeOH5	19.5			
10	MeOH6	19.5			
11	MeOH7	19.5			
12	AMON	19.5			
13	CI1	12.7			
14	CI2	12.7			
15	CI3	12.7			
16	CI4	12.7			
17	CI5	12.7			
18	CI6	12.7			
19	CI7	12.7			
20	CI1	12.7			

## INSTRUMENTATION DETAILS

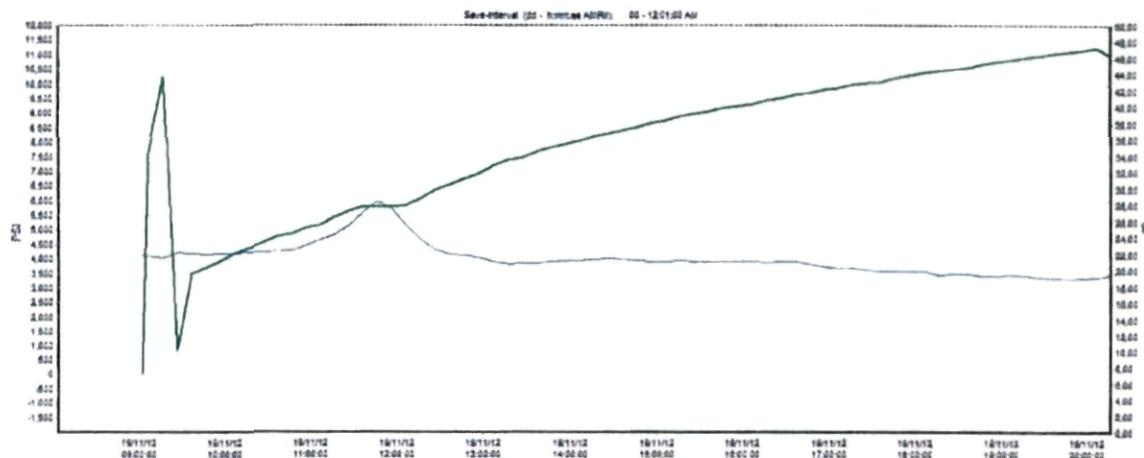
Type of instrumentation:	Serial No.	Calibration Date:	Range:	Manufacturer:
Pressure Indicator:				
Pressure Recorder:	441	9/29/2012	0-1400 BAR	Keller
Pressure Gauge:				

Comments:

## ACCEPTANCE:

FOR BHI:	Jeff Davis	SUBSEA 7:		BP:	
SIGNATURE:		SIGNATURE:		SIGNATURE:	
DATE:	11/19/2012	DATE:		DATE:	

# BP Na Kika Phase 3 Entire Field Pressure Test



## Device-Information

File: 19.11.2012\_09.02.22\_00.IDC

### Device-Identification:

Device-SN: 441  
Device-ID: 10.2  
Device-Version: 4.47  
Battery-Capacity: 100%

## Compensated Pressure- and Temperature-Range(s)

P1 min / max (bar): 0.0000 1400.0000  
TOB1 min / max (°C): 0.000 50.000

## Comment

BP Na Kika Phase 3 Entire Field Pressure Test  
Test Medium: Transqua  
Lines: 3-25  
11/19/12

## Record configuration:

Starttime: 11/19/2012 9:02:22 AM  
Fixed Save-Interval (dd hh:mm:ss): 0 12:01:00 AM  
Endless (circular memory): No  
Converted into waterlevel: No  
Airpressure compensated: No



## CERTIFICATE: UMBILICAL TUBING PRESSURE TEST

<b>PROJECT:</b>	BP Na Kika Phase 3	<b>JOB NO:</b>	C/1337/11
<b>CLIENT:</b>	Subsea 7	<b>DATE:</b>	11/19/2012
<b>LOCATION:</b>	Na Kika	<b>VOLUME:</b>	N/A
<b>TOTAL LENGTH:</b>	N/A	<b>TEST MEDIUM:</b>	SST5007

This is to certify that the following Umbilical(s) were tested as detailed below:

Type of Test:	Leak	(Strength, Leak or Proof Test)
Umbilical(s):	Ariel A-5 and K-4	
From:	Bullnose	
To:	K-4 SDU	
Via:		
Minimum Test Pressure:	5,500 PSI	
Maximum Test Pressure:	6,000 PSI	
Acceptance Criteria:	No unexplainable loss in pressure.	
Minimum Hold Period:	4 Hours	
Maximum pressure recorded during the test period:	5788 PSI	
Minimum pressure recorded during the test period:	5762 PSI	
Pressure Drop:	26 PSI	

**LINE(S) DETAILS**

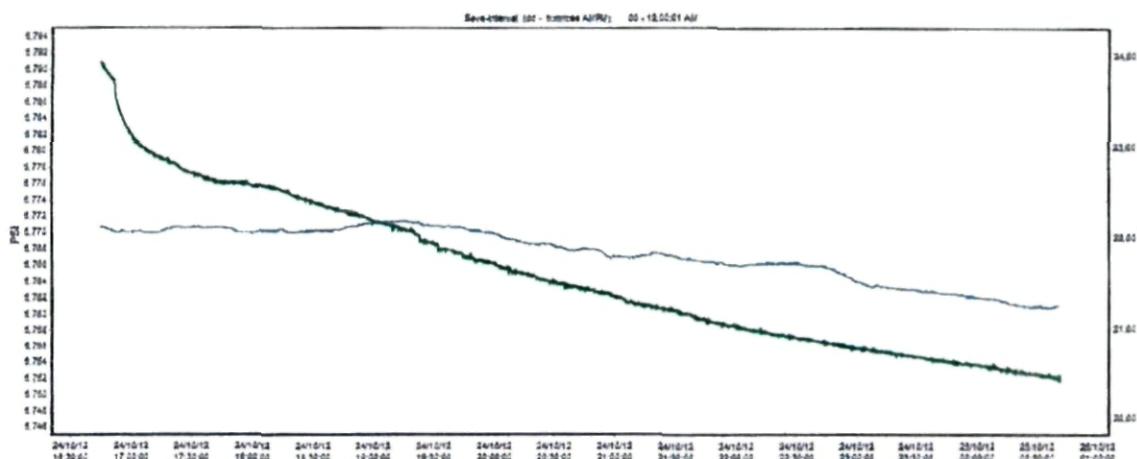
## INSTRUMENTATION DETAILS

INSTRUMENTATION DETAILS				
Type of instrumentation:	Serial No.	Calibration Date:	Range:	Manufacturer:
Pressure Indicator:				
Pressure Recorder:	9031	6/20/2012	0-1400 BAR	Keller
Pressure Gauge:				
Comments:				

#### **ACCEPTANCE:**

ACCEPTANCE:			
FOR BHI:	Jeff Davis	SUBSEA 7:	
SIGNATURE:		SIGNATURE:	
DATE:	11/19/2012	DATE:	

# BP Na Kika Phase 3 Entire Field Pressure Test



## Device-Information

File: 24.10.2012\_16.44.41\_00.IDC

### Device-Identification:

Device-SN: 9031  
Device-ID: 10.2  
Device-Version: 11.4  
Battery-Capacity: 100%

## Compensated Pressure- and Temperature-Range(s)

P1 min / max (bar): 0.0000 1400.0000  
TOB1 min / max (°C): 0.000 50.000

## Comment

BP Na Kika Phase 3 Entire Field Pressure Test

Test Medium: Transqua

Lines: 1 & 2

9/19/2012

## Record configuration:

Starttime: 10/24/2012 4:44:41 PM  
Fixed Save-Interval (dd hh:mm:ss): 0 12:00:01 AM  
Endless (circular memory): No  
Converted into waterlevel: No  
Airpressure compensated: No



## Umbilical Post System Installation Test Log Sheet

Project:	Nakika Phase 3	Location:	BP Na Kika Platform
Umbilical Ident:	ARIEL A-5 and Kepler K-4	Instrument Type:	Keller Manometer
Test Date:		Serial No.:	

Sheet 1 of \_\_\_\_

## Fluid Type &amp; Pressure Reading (psi)

MANIFOLD		1	2		MANIFOLD		1	2			
Date	Time (Hrs/Mins)	Transqua Lines	Transqua Lines	Temp. °C	Comments	Date	Time (Hrs/Mins)	Transqua Lines	Transqua Lines	Temp. °C	Comments
11/19	11:00	5788				11/19	23:00	11290			
	11:30	5778					23:15	11291			
	12:00	5774				11/19	23:30	11291	END HP LINES (4 HR HOLD)		
	12:30	5774					23:40		START BLEED DOWN		
	13:00	5773			LP Lines						
	13:30	5771			TEST (4HR HOLD)						
	14:00	5769									
	14:30	5767									
11/19	15:00	5762									
<hr/>											
<i>HP LINES 4 HR HOLD</i>											
11/19	18:00	10268									
<i>PRESSURE</i>											
	19:00	11300									
	19:15	11300									
	19:30	11300									
	19:45	11299									
	20:00	11299									
	20:15	11294									
	20:30	11294									
	20:45	11295									
	21:00	11295									
	21:15	11295									
	21:30	11295									
	21:45	11295									
	22:00	11295									
	22:15	11290									
	22:30	11291									
11/19	22:45	11291									

Comments:

Signed for and Accepted By

For BP

Name: Jeff Davis  
Signature:   
Date: 11-19-12

Signed for and Accepted By

For Subsea 7

Name: Mason Finlayson  
Signature:   
Date: 11-19-12

For BP

Name:

IAGOSIECH MANGALA  
Signature:   
Date: 11-19-12



Service Solutions

# Certificate of Calibration



6540984

Certificate Page 1 of 2

Company ID: NOWPIP  
BAKER HUGHES

4101 OATES ROAD  
HOUSTON, TX 77013

## Instrument Identification

PO Number: CC-ALISTAIR

Instrument ID: 6200711643

Model Number: MT9083A

Manufacturer: ANRITSU

Serial Number: 6200711643

Description: OTDR

Accuracy: Mfr. Specifications.

## Certificate Information

Reason For Service: CALIBRATION

Technician: STEVE SEAMON

Type of Cal: NORMAL

Cal Date 07Sep2012

As Found Condition: IN TOLERANCE

Cal Due Date: 07Sep2013

As Left Condition: LEFT AS FOUND

Interval: 12 MONTHS

Procedure: GNR FIBER OPTIC

Temperature: 73.0 F

Humidity: 39.0 %

Remarks:

Tektronix Service Solutions certifies the performance of this instrument has been verified using equipment of known accuracy which are traceable to National Metrology Institutes (NIST, NPL, PTB) which are traceable to the International System of Units (SI), derived from ratio type measurements, compared to reference materials or recognized consensus standards. The policies and procedures used comply with ANSI/NCSL Z540.1-1994. The quality system is registered to ISO9001.

This certificate shall not be reproduced, except in full, without the written consent of Tektronix Service Solutions.

Approved By: STEVE SEAMON  
Service Representative

## Calibration Standards

NIST Traceable#	Inst. ID#	Description	Manufacturer	Model	Cal Date	Date Due
6124549	000798	TEMPERATURE / HUMIDITY RECORDER	HONEYWELL	612X9HT-II-III-7E11	28Apr2012	26Oct2012
5909675	H044026	UNIVERSAL COUNTER	HEWLETT PACKARD	53132A	17Feb2012	17Feb2013
5802441	H090089	OPTICAL HEAD INTERFACE	HEWLETT PACKARD	81533B	18Jan2012	16Apr2013
6802408	H080090	OPTICAL SENSOR	HEWLETT PACKARD	81521B	18Jan2012	16Apr2013



## TEST CERTIFICATE

We hereby certify that the calibration references used in carrying out this work can be traceable to the National Standards and that the results of the calibration and relevant Procedures are recorded and available for inspection if required.

### Calibration Reference

Description      Digital Pressure Gauge  
Manufacturer    Keller  
Model           Leo Rec.  
Serial number   4918  
Cal due date    09/29/2012  
NIST             67042

### Calibration of

Description      Pressure Gauge  
Manufacturer    Keller  
Model           Leo Rec.  
Serial numbers   441  
ID               K23

## TEST RESULTS

### Applied Pressure

0               PSIG  
20000           PSIG

### Indicated Pressure

0               PSIG  
19985           PSIG

Calibration Date    January 19, 2012

  
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# KELLER Druckmesstechnik



St Gallerstrasse 119, CH-8404 WINTERTHUR, Tel. +41 / 52 / 235 25 25 Fax. +41 / 52 / 235 25 00  
Schwarzwaldstrasse 17, D-79798 JESTETTEN, Tel. +49 / 77 45 / 92 14-0 Fax. +49 / 77 45 / 92 14-60

## Prüfprotokoll

Calibration Certificate / Fiche de calibration

Typ :	LEO Rec Ei / 1400bar / 81737		
Type / Type :			
Serienummer :	9031	Auftrags Nr. :	172573
Serial No. / N° de série :		Keller Order no. / Réf. Keller :	
Bereich :	0.0	... 1400.0	bar
Range / EM :			
Anzeige :	0.0	... 1400.0	bar
Display / Affichage :			
Komp. Temp. Bereich :	0...50°C	Speisung :	3.6 V Batt.
Comp. Temp. Range / Gamme de Temp. Comp.		Supply / Alimentation :	

Prüfmittel :	Druckwaage PM 02057		
Testequipment / Appareil de test :			
Luftdruck :	968	mbar	
Air Pressure / Pression atm. :			
Temperatur :	25	°C	
Temperature / Température :			

Bemerkung :			
Remark / Remarque :			

Druck	Anzeige	Fehler
Pressure / Pression	Display / Affichage	Error / Erreur
bar	bar	%FS / %EM
0.0	0.7	0.05
400.0	399.7	-0.02
800.0	799.4	-0.04
1200.0	1200.4	0.03
1400.0	1400.3	0.02

Prüfer /in: Test person: Contrôlé par:	A.Luginbühl	Datum Date Date	20.06.2012
--	-------------	-----------------------	------------



4181 Gates Road  
Houston, Texas 77013

## TEST CERTIFICATE

We hereby certify that the calibration references used in carrying out this work can be traceable to the National Standards and that the results of the calibration and relevant Procedures are recorded and available for inspection if required.

### INSTRUMENT IN CALIBRATION

Instrument ID# IR7  
Manufacturer Megger  
Description Insulation Tester

Model: MIT520  
Serial Number 2375  
Accuracy 5%FS

#### Resistance Test @ 250V

Range	Nominal	Actual
MΩhm	4	3.98
MΩhm	8	7.98
MΩhm	10	9.98

#### Resistance Test @ 500

Range	Nominal	Actual
MΩhm	4	3.98
MΩhm	8	7.97
MΩhm	10	9.98

#### Resistance Test @ 1000 V

Range	Nominal	Actual
MΩhm	4	3.98
MΩhm	8	7.97
MΩhm	10	9.98

#### Voltages Test

Range	Nominal	Actual
VDC	250	249
VDC	500	498
VDC	1000	998

Humidity 33%

Temperature 71:40 F

### Calibration Standards

NIST	Description	Model	S/N	Cal due date
1050483	Voltmeter	87-5	18250163	10/30/2012
6284321	Decade box	380400	Q223775	06/15/2013
6282833	Hygro-Thermometer	445715	Z204158	06/14/2013

Calibration Date August 20, 2012

Cal due Date August 19 2013

  
ELECTRONIC TECHNICIAN



We hereby certify that the calibration references used in carrying out this work can be traceable to the National Standards and that the results of the calibration and relevant Procedures are recorded and available for inspection if required.

**INSTRUMENT IN CALIBRATION**

Instrument ID #	MM18	Model	87 IV
Manufacturer	Fluke	Serial Number	18250163
Description	Multimeter	Accuracy	

**TEST RESULTS**

Range	Read	Range	Read	Range	Read	Range	Read
AC V		DCV		Ohms		Hz	
1	1.2	1	1.1	1	1	1.03	1.49
100	100	100	99	100	99	500	499
1000	999	1000	999	1000	1001	10000	10000

**THE FOLLOWING STANDARDS WERE USED**

NIST	DESCRIPTION	MODEL	S/N	CAL DUE DATE
6281636	Function Generator	4017	260-02048	6/14/2013
5475545	Dual Display Digital Multimeter	45	6702035	9/12/2012
6284321	Resistance decade box	380400	Q223775	6/15/2013
Calibration Date	August 27 2012	Cal due date	August 26 2013	

  
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